Innovative activity of logistics enterprises in the modern world

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Abstract. The peculiarities of application and development of innovations in logistic enterprises in modern conditions have been considered by the authors. The influence of innovations on the efficiency of logistics enterprises functioning was investigated. Innovations play a key role in providing quality services to enterprises and increasing their competitiveness. Finding and implementing innovations allows to ensure sustainable development of the enterprise and consolidate its competitive position in the market. The dependence of the Logistics Performance Index (LPI) on the general macroeconomic situation in the country is proved. Recommendations on the implementation of innovations in the process of logistics enterprises, which collectively solve an important scientific and applied task to identify ways to increase the efficiency of economic activity and the competitiveness of Ukrainian logistics enterprises have been provided. Directions of search of potential of innovations of the Ukrainian logistics enterprises have been offered. New logistic technologies reflecting the development of society, business and technological trends and innovations in the field of logistics have been considered. The necessity of introduction of innovations in the process of activity of logistics enterprises has been proved to increase the efficiency of their business activity and competitiveness.

1 Introduction

Logistics service innovation refers to a new, helpful idea, procedure, or practice in logistics operations that is different from a company's current practice [1]. Innovations are the basis for the development of enterprises of all types of activities, including logistics. As Chapman note, "Innovation is imperative for logistics firms serving the market in the new economy" [2, p. 641]. This sentiment is reinforced by Flint, "Innovation is critical to the success of many firms, including providers of logistics services" [3, p. 113]. The same is true for companies selling products: they may gain competitive advantage by focusing on logistics service innovation. Leveraging logistics service can help to build strong relationships with customers, generate barriers to competition, increase customer loyalty and switching costs, and make market activities more efficient [4]. In conditions of inconsistent environment and

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increasing competition among logistics enterprises their development relies on constant search and implementation of new technologies, delivery methods and service. In order to achieve competitive advantages in the cost, service time and added value (for the customer), logistic companies should use newest technologies and innovations, which are essential to cut costs of resources and to exclude additional, unproductive expenses. This is all because company's innovative activity determines their competitiveness not only in the current moment but also in long run.

According to I. Afanasenko and V. Borisova the object of innovations in logistics is "trajectory optimization of circulating economic flows, in order to reduce the time of logistics cycle, to rationalize the total costs of commodities, to increase the effectiveness of development of logistic chain"[5]. Reserves for increasing the efficiency of logistics processes are mainly in the latest technologies and various innovations that use these technologies.

Opportunities for development are to be found mainly in new technologies and various innovations. Considering the underdevelopment of development in logistic infrastructure in Ukraine, the problem of innovation implementation in logistic activity of Ukrainian companies attracts significant interest.

2 Methods

As a main method of research, we use the critical analysis and comparison of analytical reports, innovative development strategies and scientific publications on the issues of innovative activity of logistics enterprises.

For the purpose of achieving the set goals, the following general scientific and specialized methods were used:

- theoretical generalization, comparison and systematization - to study the essence and features of innovative activity of logistics enterprises;
- system analysis – for determining the state and level of development of the logistics system of Ukraine;
- abstract-logical – for theoretical summarization and conclusion;
- graphical method – for visualization dynamics of the Logistics Performance Index (LPI) of Ukraine and others country.

3 Results and Discussion

Innovations are vital for the growth of all the enterprises, including those that specialize in logistics. Today, when opportunities for rapid increase in innovative activity of producers are restricted and the progress slowed down, companies are striving to create reserves to increase the effectiveness by means of logistics. The growing number of companies turning to logistic companies suggests that they see real opportunities to boost their competitiveness. When there're couple suppliers of the same product on the market, the one that is be able to provide higher quality transportation and service will have an edge.

Namely for those who use the services of technologically advanced logistics enterprises, additional external competitive advantages are formed. On the other hand, logistics services related to the fast delivery of products to the consumer, wherever he was, require innovation in the field of vehicle production and in the infrastructure segment.

In countries with developed market economies logistics has already become the foundation of successful operating of market entities, and the formation of logistic system ensures the rise in effectiveness of economic processes and decline in company's aggregate costs. Only a small proportion of Ukrainian enterprises work on bases of concepts of logistics.

Mostly it's companies with foreign investment that have separate logistics departments and well-formed logistic system.

In order to objectively assess logistic system in Ukraine and compare it to logistic systems of other countries, we use the Logistics Performance Index (LPI) developed by World Bank (Fig.1). The Logistics Performance Index is an interactive benchmarking tool created to help countries identify the challenges and opportunities they face in their performance on trade logistics and what they can do to improve their performance. Construction of LPI following indicators were used, the efficiency of customs and border clearance, the quality of trade and transport infrastructure, the ease of arranging competitively priced shipment, the competence and quality of logistics services, the ability to track and trace consignment, the frequency with which shipments reach consignees within scheduled or expected delivery time [7].

Fig. 1. Dynamics the Logistics Performance Index (LPI) of some of the worlds in 2007-2018
Source: According to the data [7].

According to LPI Ukraine is placed 66th out of 160 countries that got in World Bank's rating. The world's leading economies are found atop suggesting that there's a high correlation between country's logistic performance and economic success. Ukraine was placed 73rd in 2007, 102th in 2010, 66th in 2012, 61th in 2014, 80th in 2016 and 66th in 2018. The decrease of LPI after 2014 can be attributed to worsening of political and economical situation in the country.

Macroeconomic situation in Ukraine was unstable throughout the last from 2010 till 2017. The factors of external impact influence the functioning of logistic companies, because their operating environment is fairly dynamic. Accounting the impact of external factors in practices of logistic companies provides gradual adaptation to modern demands: development of a network and the scale of activities, the increase in flexibility and mobility of the internal economy system, the decrease in costs. By cutting expenditures on separate stages of logistic's chain total costs diminish, the labor organization improves, productivity and effectiveness of separate logistic processes increases. In order to secure a further growth in performance logistic companies are required to implement innovations. The implementation of innovations will facilitate optimization of logistic flows, which in turn will provide opportunities to gain economic effect and to boost competitiveness not only of the logistic that of other companies operating on the market. It will be possible to use the reserves of the company as a competitive advantage, the use of the latest technological

programs that enable timely response to external and internal changes in order to achieve the desired result.

Ukrainian logistic companies are required to transition to an active phase of realization of system innovations. In modern circumstances the search of potential innovations is relevant in multiple directions:

1) Informatization and computerization of logistic processes allows to effectively operate various material flows. At the same time, there's an opportunity to organize a complex transporting service based on the single agreement and to formulate tasks for participants of the logistics chain on the basis of the order of the consumer of transport services [9, p.123]. Creation of database containing information about all logistic operations gives an ability for company to coordinate it's shipping and transporting processes.

2) Transporting optimization, namely the cooperation of various transporting means on the same route in order to control transporting, loading, unloading, warehousing and delivering to the destination, etc., will assist in realization of integration of logistic chain and reduce the cost.

3) The execution of strategy to diminish costs by means of standardizing the products that require improvement of all inner functioning processes.

Innovations in logistics are realized on various stages of operating. Each operation in the company will be more effective if done using innovations. The usage of innovations in logistics makes customers more confident in company's quality and timely service and significantly raises the competitiveness of company.

Richey [10] examined the relationship between reverse logistics innovation and a firm's performance. In doing so, they stated that logistics innovation should improve a firm's market effectiveness and internal cost efficiency. They also stated that logistics innovations can lead to increased revenues due to added services and improved customer satisfaction. The findings indicated a positive relationship between logistics innovation and strategic performance for large firms. Together, the findings highlighted above indicate a positive relationship between logistics innovation and the development of a competitive advantage. Persson [11] argues that logistics service innovation can provide firms with a competitive advantage. The author cites examples such as a firm's use of EDI to improve communications with customers, and the development of new services to open up new customer markets and add value to existing customers.

Attracting innovations, introducing and using innovative technologies allows enterprises not only to increase competitiveness, but also to minimize the impact on the environment, develop the social responsibility of their business [12].

Viewing the logistic trends, we can't fail to notice the new emerging logistic technologies. DHL company regularly publishes key instruments for the global logistic community – DHL Trend Research, that reflects the progress in business and technological tendencies in the logistics field [13]. Logistics trends 2018/2019:

1) Social & Business Trends relevant in >5 years (Batch Size One, Grey Power Logistics, Servitization, Smart Containerization, Supergrid Logistics, Tube Logistics);

2) Social & Business Trends relevant < 5 years (Connected Life, Digital Work, Fair & Responsible Logistics, Fresh Chain, Green Energy Logistics, Logistics Marketplaces, Omni-channel Logistics, Sharing Economy);

3) Technology Trends relevant in >5 years (3D Printing, Artificial Intelligence, Bionic Enhancement, Blockchain, Next-generation Wireless, Self-driving Vehicles, Unmanned Aerial Vehicles, Virtual Reality & Digital Twins);

4) Technology Trends relevant in <5 years (Augmented Reality, Big Data Analytics, Cloud Logistics, Internet of Things, Low-cost Sensor Solutions, Robotics & Automation).

Just one in 10 firms is confident that its business has the right approach to breakthrough innovation, according to a new study from Arthur D. Little (ADL) [14]. In Breakthrough

Innovation, ADL found that 88% of business leaders were dissatisfied with their strategies for nurturing breakthrough – or radical – innovation. At the same time, companies expected the revenue contribution of breakthrough innovation to double over the next five years. The survey of leading European companies found that the time to deliver major revenue gains (three to 10 years) was a common barrier, due to short-termism and lack of project commitment. Companies with clearly defined innovation goals and dedicated breakthrough teams saw 15% more revenue gains and expressed more confidence in their breakthrough innovation activities.

Innovations is the direction in today's entrepreneurship that requires significant financial resources. According to Forbes, the world's most innovative companies spend close to 16 billion dollars a year [15]. On the other hand, innovations is the source of competitive advantages, that's why recognized leaders in innovation always increase investment in this direction.

The level of innovative activity of enterprises in Ukraine remains relatively low. According to the National Statistic Association of Ukraine, only 16.2% of companies were innovatively active in 2017. This index has grown compared to the previous years, though it doesn't correspond to the level of best economically developed countries (20-50%). The amount of aggregate expenses on innovations was 9117.5 thousand UAH, which it's not enough to facilitate the required innovative activity [8].

The core to solving innovation progress problems in Ukrainian companies, including logistic companies, should become the complex government innovation-investment policy aimed at the raising the rate of innovation investment and the formation of an effective operating system to deal with innovations on all levels of economy [17].

The long-term strategy of innovative development by improving national innovation system can be considered the starting point of a state policy in the innovative sphere that will enable a country to develop adequate implementation toolkit and transform it into a legislative framework, targeted and comprehensive development programs [18].

3 Conclusion

Logistic companies require constant development and improvement as well as a profound study of all possible factors of influence and individualization of each innovation. Emergence of a new technical inventions successfully used by logistic enterprises considerably increases the effectiveness of the company. Realization of innovations in logistic companies allows to strengthen the competitive positions of stronger companies and to eliminate weaker ones from the market, which in turn will lead to the improvement in quality of service.

Companies successfully realizing innovations in their activities are constantly evolving and have a great demand on the services in the logistic market. Increase in quality of service and the ability to control the goods transporting increases the rating of a company, which influences the quantity of orders. Logistics are changing, new technologies and business models emerge. Even in crisis innovations shouldn't be rejected. In today's circumstances competitions increases considerably on the market, that's we need to find and implement latent, not yet used reserves. Any changes that influence the development of the company in a positive way give it advantages.

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